WHAT IS CLAIMED IS:

1. An electron microscope having an energy filter for measuring electron beam energy loss spectra or observing element distribution states by analyzing the energy of an electron beam, wherein the electron beam energy loss spectrum of an electron beam irradiated on a sample surface at a position at most 13 micrometers shifted away from the optical axis of said electron microscope has an energy deviation of 1 eV or below relative to that of said electron beam irradiated on said sample surface along the optical axis of said electron microscope.

2. An electron microscope having an energy filter that comprises:

an energy dispersion means for analyzing the energy of an electron beam;

electron beam incidence means provided on the upstream side of said energy dispersion means in order to make said electron beam incident to said energy dispersion means; and

path correction means for correcting said electron beam exiting from said energy dispersion means for its path in the energy-axis direction of an energy dispersion plane formed by said energy dispersion means.

3. An electron microscope according to claim 2, wherein said electron beam incidence means is composed of one or more stages of deflection coil.

4. An electron microscope including an energy

filter that has an energy dispersion means provided for analyzing the energy of an electron beam and deflection coils respectively disposed on the upstream and downstream sides of said energy dispersion means, wherein said deflection coil disposed on the upstream side of said energy dispersion means corrects said electron beam for its path in two directions of perpendicular axes in a plane normal to the optical axis of said energy dispersion means, or in two-dimensional way, and said deflection coil disposed on the downstream side of said energy dispersion means corrects said electron beam for its path in a plane normal to said optical axis of said energy dispersion means so that at least one of the directions in which said electron beam is corrected for its path coincides with the energy axis of an energy dispersion plane formed by said energy dispersion means.

5. An electron microscope according to claim 2, further comprising:

a slit for selecting said electron beam on the basis of its energy resulting from the analysis of said electron beam by said energy dispersion means; and

deflection coils of at least one or more stages that constitute said electron beam incidence means and said path correction means, said deflection coil disposed on the downstream side of said energy dispersion means being provided on the upstream side of said slit.

6. An electron microscope according to claim 2, wherein said electron beam incidence means for making said electron beam incident to said energy dispersion means is composed of at least one or more stages of deflection coil, and said path correction means is formed of a velocity regulator capable of accelerating or decelerating said electron beam.

7. An electron microscope according to claim 6, further comprising an electron beam path correction controller for controlling said velocity regulator.

8. An electron microscope according to claim 2, wherein said electron beam incidence means is composed of at least one or more stages of deflection coil, and said path correction means is formed of an energy dispersion means by which a field intensity necessary for correcting said electron beam for its path is superimposed upon a field intensity for energy dispersion necessary for analyzing the energy of said electron beam.

9. An electron microscope according to claim 8, further comprising an electron beam path correction controller for controlling said energy dispersion means intensity adjuster.

10. An electron microscope according to claim 2, wherein said electron microscope is a scanning transmission electron microscope.